Fig_1

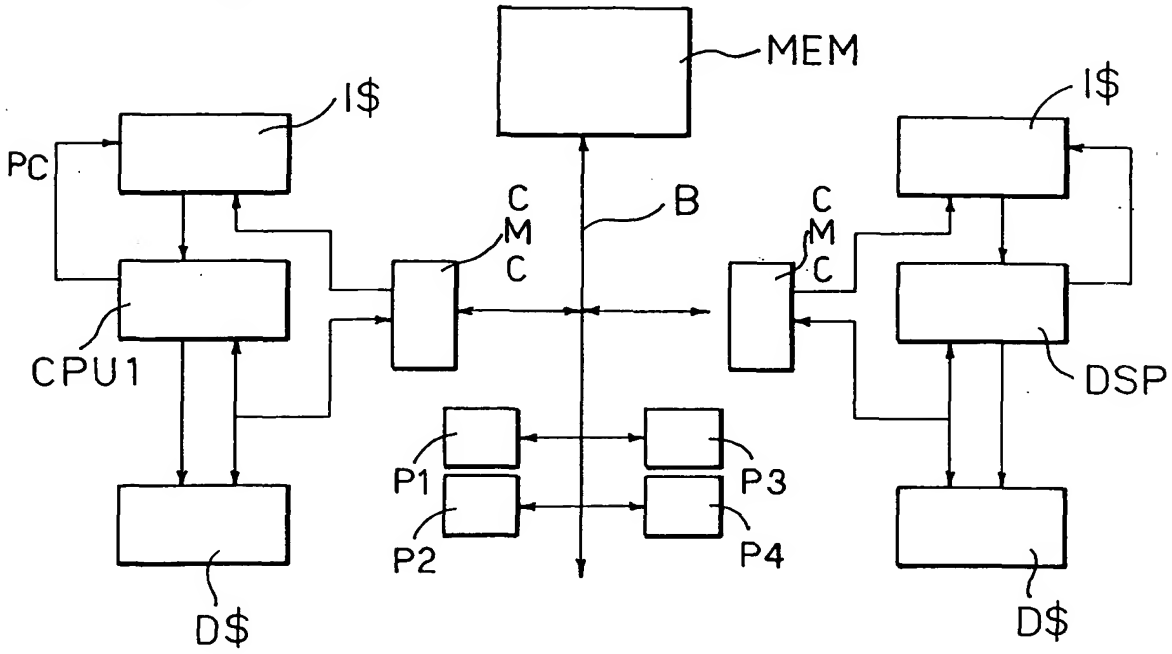
MEM
I$
PC
C
M
C
B
C
M
C
I$
CPU1
DSP
P1
P3
P2
P4
D$
D$

Fig_2

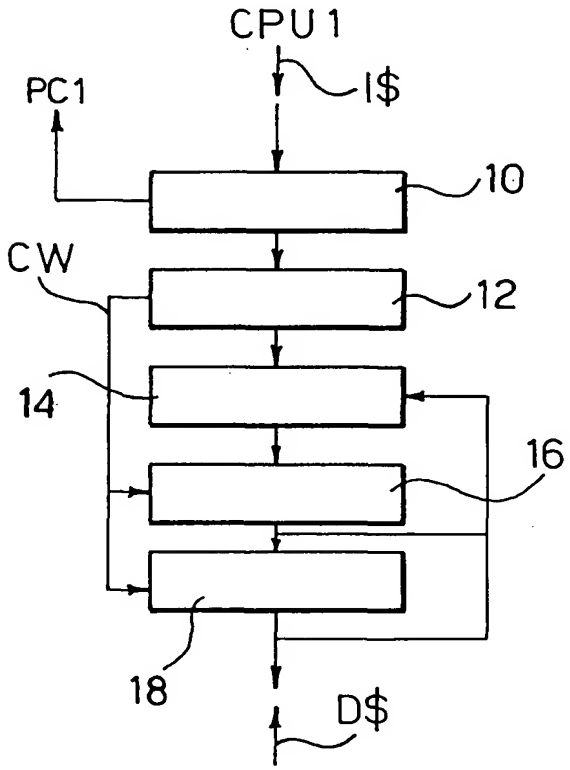
CPU1
I$
PC1
10
CW
12
14
16
18
D$

Fig_3

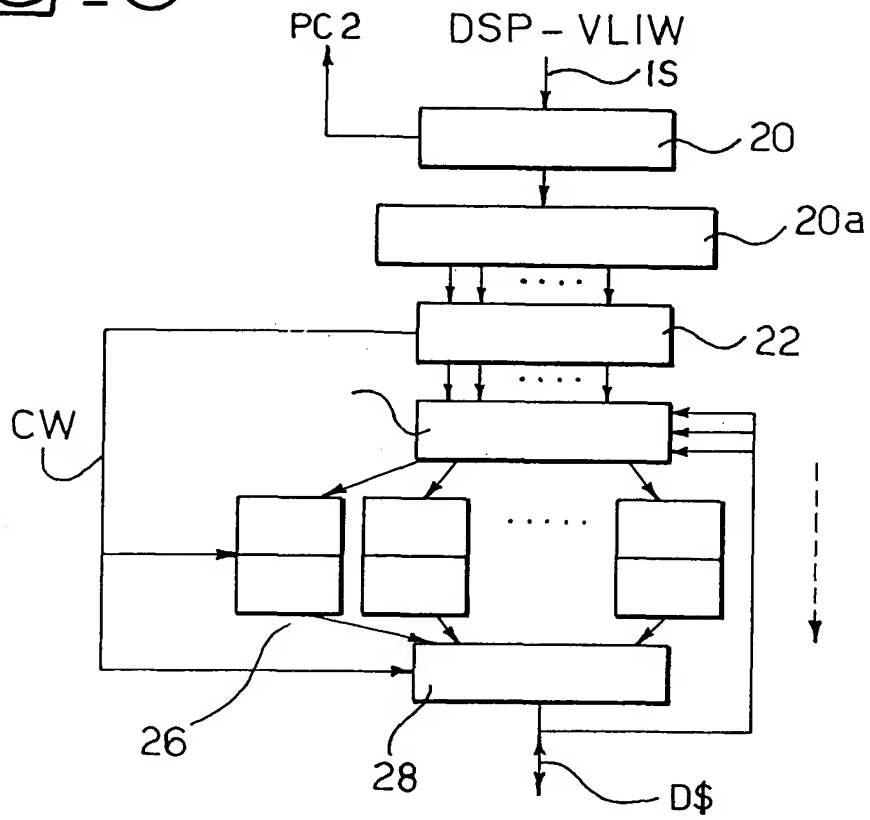
PC2
DSP – VLIW
IS
20
20a
22
CW
26
28
D$

Fig_4

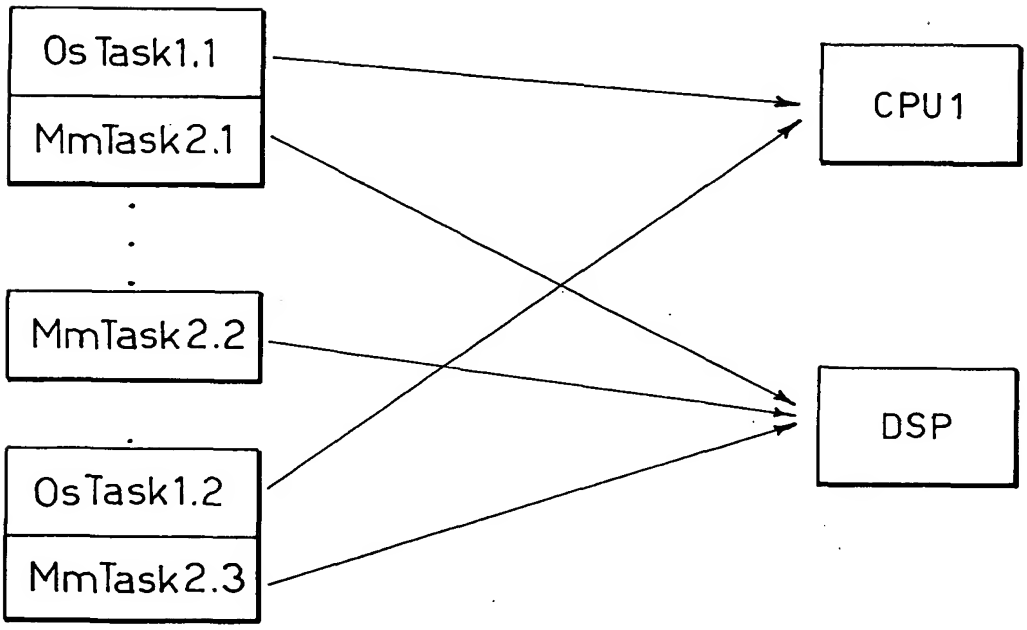
Os Task1.1
MmTask2.1
MmTask2.2
OsTask1.2
MmTask2.3
CPU1
DSP

Fig_5

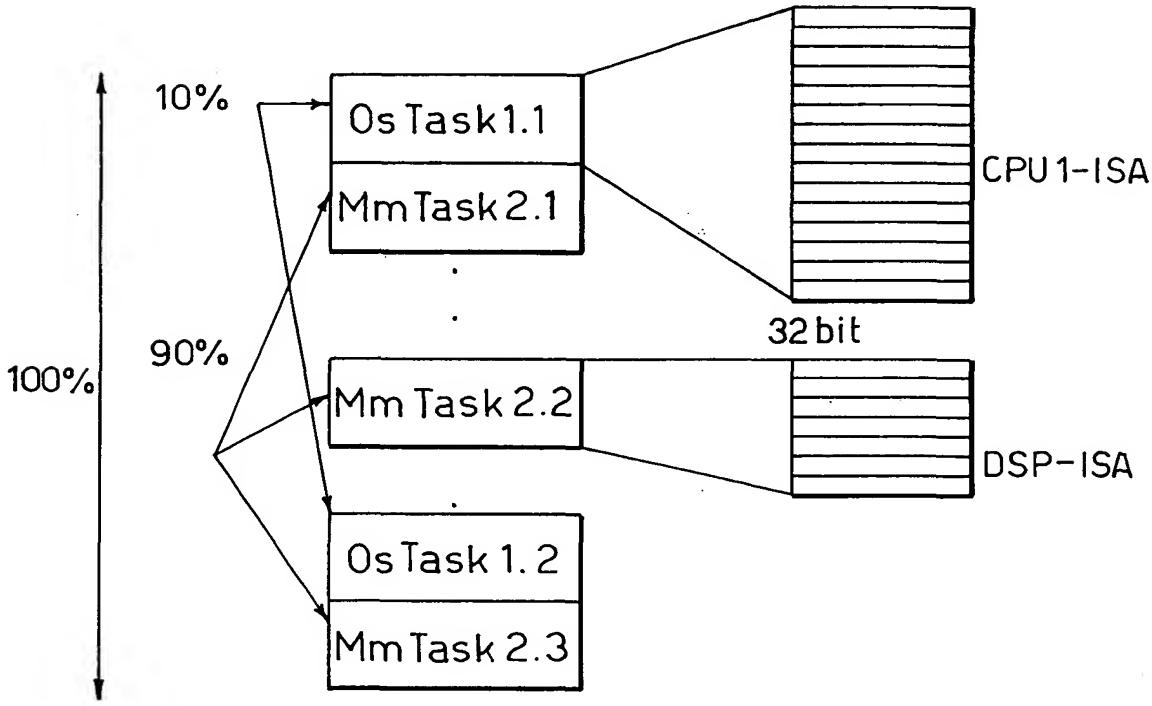
10%
90%
100%
Os Task 1.1
Mm Task 2.1
Mm Task 2.2
Os Task 1.2
Mm Task 2.3
CPU 1-ISA
32 bit
DSP-ISA

Fig_6

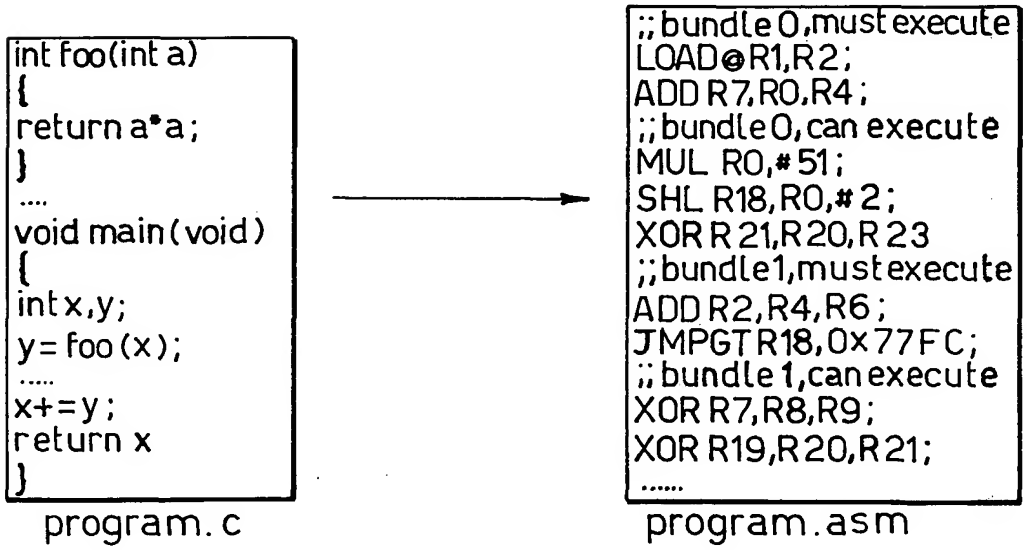
int foo(int a)
{
return a*a;
}
....
void main(void)
{
int x,y;
y= foo(x);
.....
x+=y;
return x
}
program.c
;;bundle 0,must execute
LOAD@R1,R2;
ADD R7,R0,R4;
;;bundle 0,can execute
MUL R0,#51;
SHL R18,R0,#2;
XOR R21,R20,R23
;;bundle 1,must execute
ADD R2,R4,R6;
JMPGT R18,0x77FC;
;;bundle 1,can execute
XOR R7,R8,R9;
XOR R19,R20,R21;
.....
program.asm

Fig_7

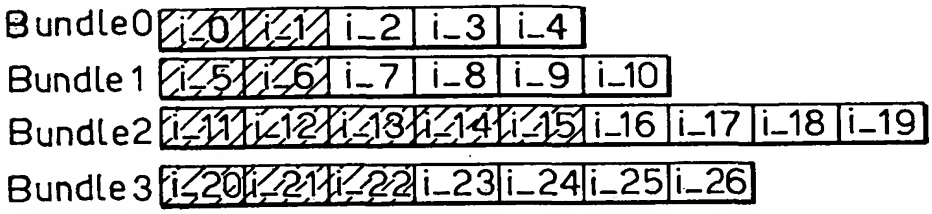
Bundle0
i_0 i_1 i_2 i_3 i_4
Bundle1
i_5 i_6 i_7 i_8 i_9 i_10
Bundle2
i_11 i_12 i_13 i_14 i_15 i_16 i_17 i_18 i_19
Bundle3
i_20 i_21 i_22 i_23 i_24 i_25 i_26

Fig_8

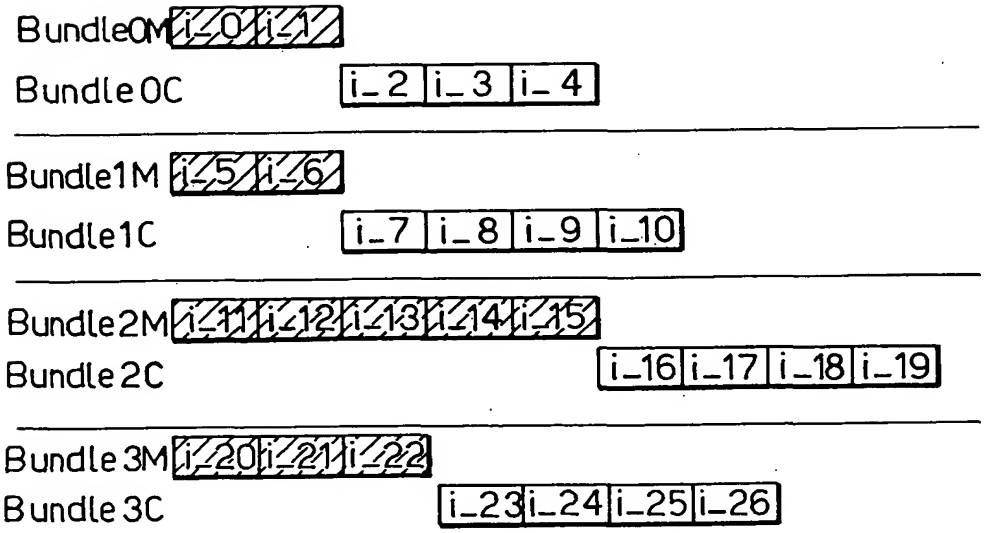
Bundle0M
i_0 i_1
Bundle0C
i_2 i_3 i_4
Bundle1M
i_5 i_6
Bundle1C
i_7 i_8 i_9 i_10
Bundle2M
i_11 i_12 i_13 i_14 i_15
Bundle2C
i_16 i_17 i_18 i_19
Bundle3M
i_20 i_21 i_22
Bundle3C
i_23 i_24 i_25 i_26

Fig_9

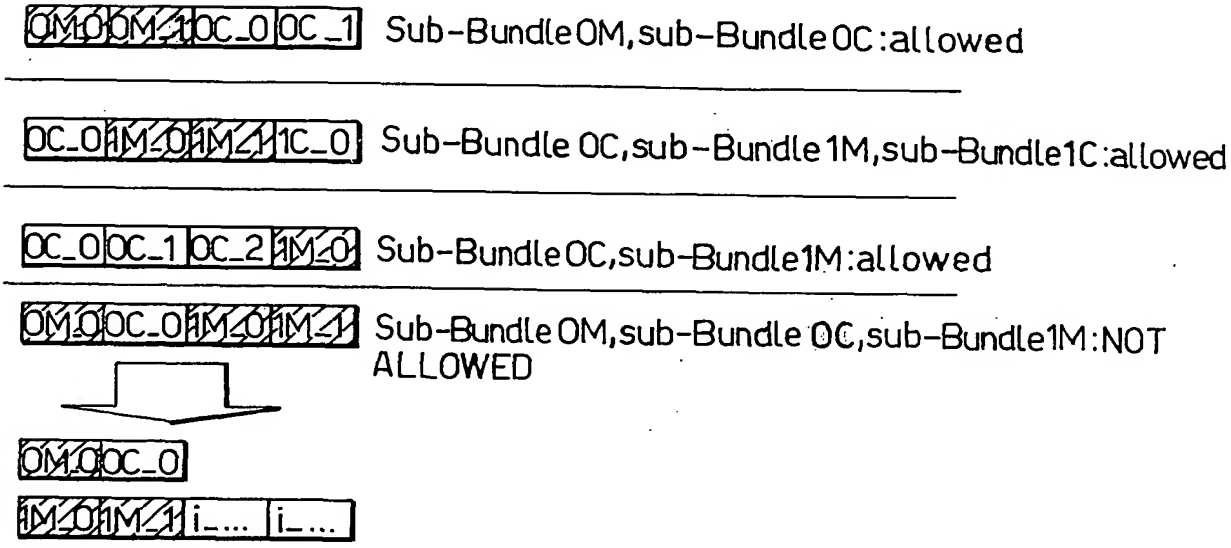
0M_0 0M_1 0C_0 0C_1
Sub-Bundle 0M, sub-Bundle 0C: allowed
0C_0 1M_0 1M_1 1C_0
Sub-Bundle 0C, sub-Bundle 1M, sub-Bundle 1C: allowed
0C_0 0C_1 0C_2 1M_0
Sub-Bundle 0C, sub-Bundle 1M: allowed
0M_0 0C_0 1M_0 1M_1
Sub-Bundle 0M, sub-Bundle 0C, sub-Bundle 1M: NOT ALLOWED
0M_0 0C_0
1M_0 1M_1 i_... i_...

Fig_10

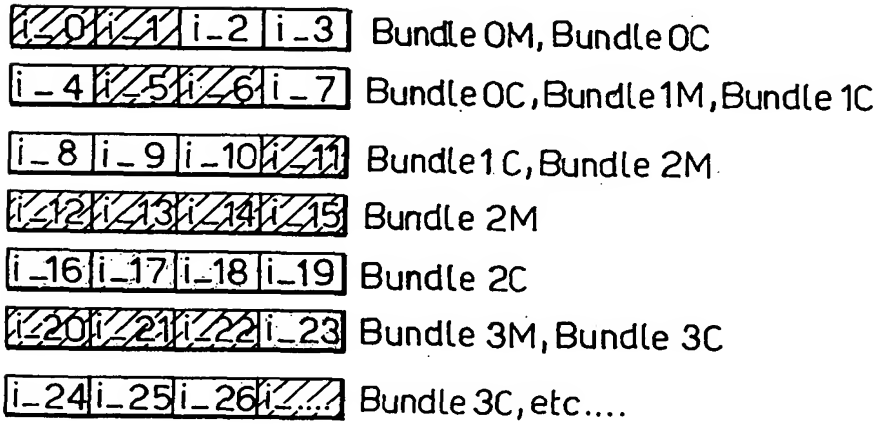
i_0 i_1 i_2 i_3
Bundle 0M, Bundle 0C
i_4 i_5 i_6 i_7
Bundle 0C, Bundle 1M, Bundle 1C
i_8 i_9 i_10 i_11
Bundle 1C, Bundle 2M
i_12 i_13 i_14 i_15
Bundle 2M
i_16 i_17 i_18 i_19
Bundle 2C
i_20 i_21 i_22 i_23
Bundle 3M, Bundle 3C
i_24 i_25 i_26 i_...
Bundle 3C, etc....

Fig_11

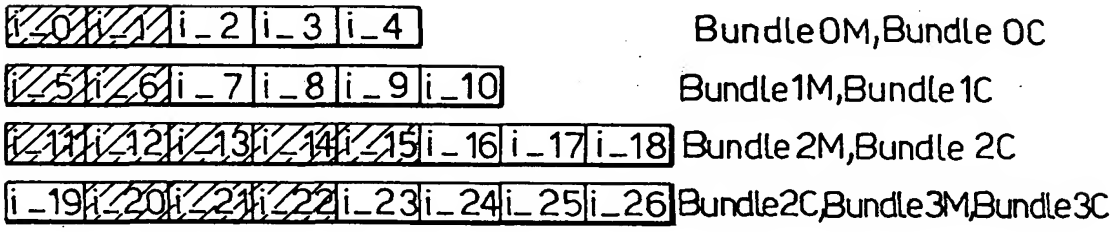
i_0 i_1 i_2 i_3 i_4
Bundle0M,Bundle 0C
i_5 i_6 i_7 i_8 i_9 i_10
Bundle1M,Bundle1C
i_11 i_12 i_13 i_14 i_15 i_16 i_17 i_18
Bundle 2M,Bundle 2C
i_19 i_20 i_21 i_22 i_23 i_24 i_25 i_26
Bundle2C,Bundle3M,Bundle3C

Fig_12

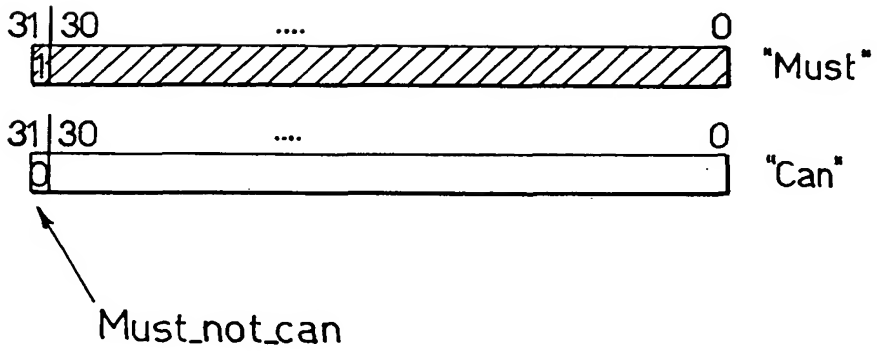
31
30
....
0
1
"Must"
31
30
....
0
0
"Can"
Must_not_can

Fig_13

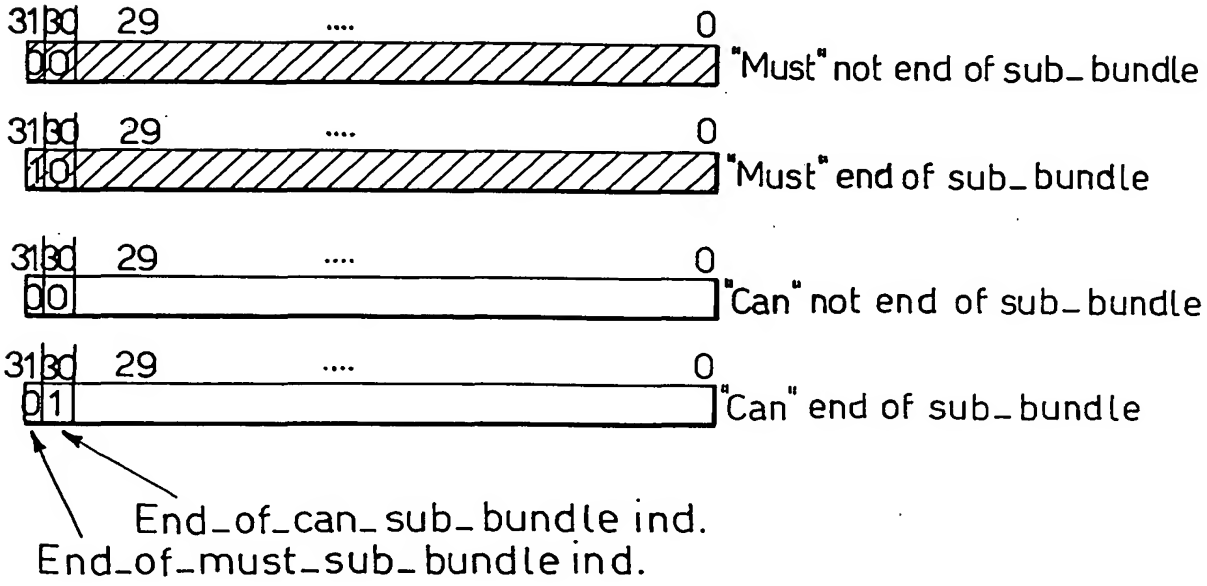
31 30 29 0
0 0
"Must" not end of sub_bundle
31 30 29 0
1 0
"Must" end of sub_bundle
31 30 29 0
0 0
"Can" not end of sub_bundle
31 30 29 0
0 1
"Can" end of sub_bundle
End_of_can_sub_bundle ind.
End_of_must_sub_bundle ind.

Fig_14

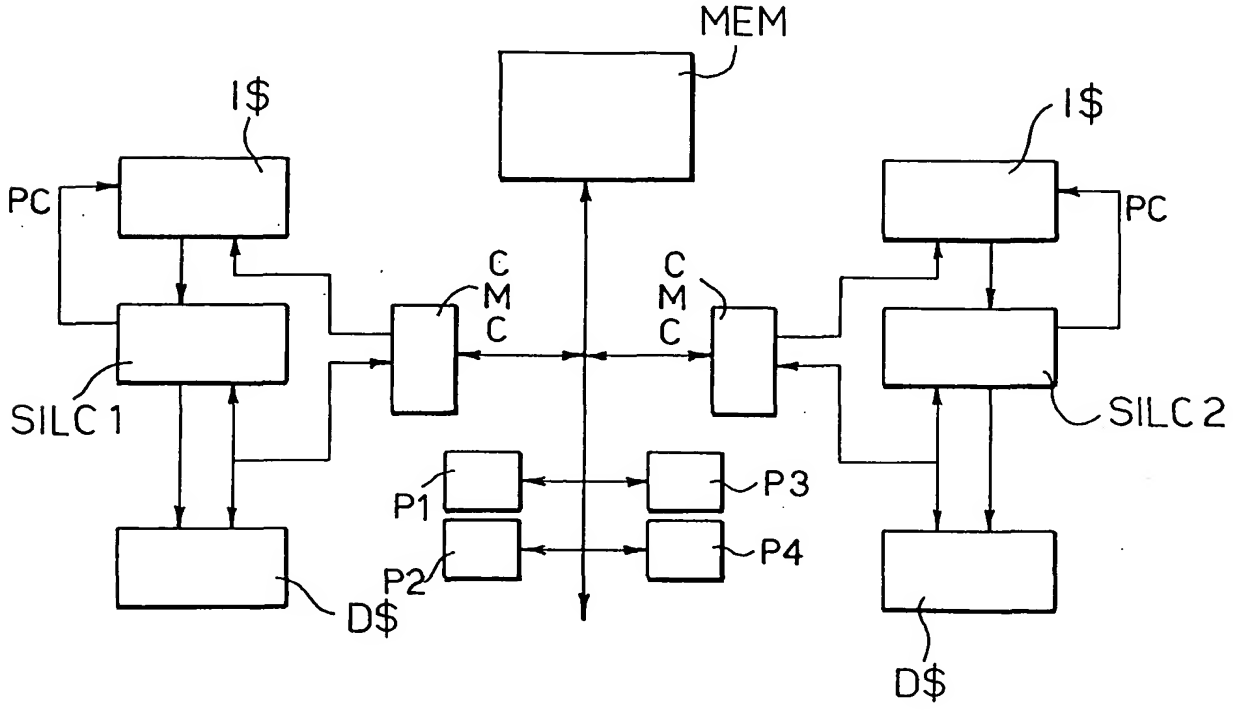
MEM
I$
I$
PC
PC
C
M
C
C
M
C
SILC 1
SILC 2
P1
P2
P3
P4
D$
D$

Fig_15

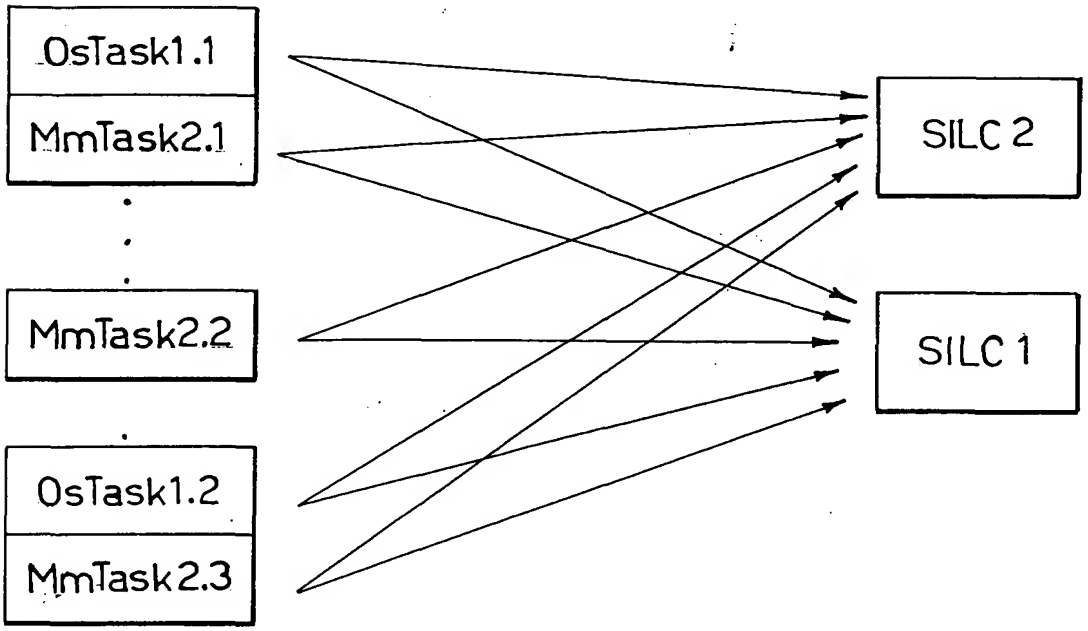
OsTask1.1
MmTask2.1
MmTask2.2
OsTask1.2
MmTask2.3
SILC 2
SILC 1

Fig_16

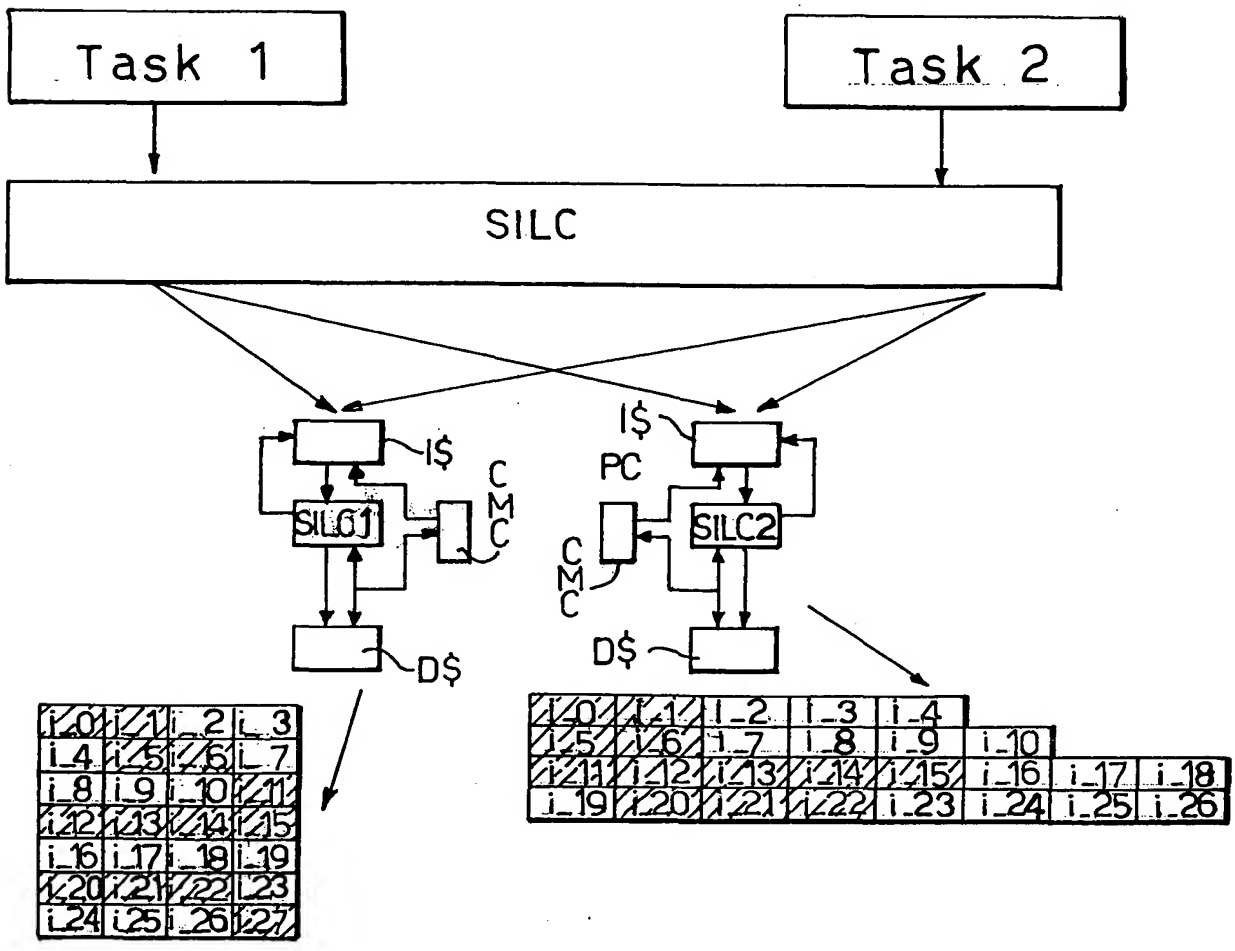
Task 1
Task 2
SILC
I$
C
M
C
SILC1
D$
I$
PC
SILC2
C
M
C
D$
i_0 i_1 i_2 i_3
i_4 i_5 i_6 i_7
i_8 i_9 i_10 i_11
i_12 i_13 i_14 i_15
i_16 i_17 i_18 i_19
i_20 i_21 i_22 i_23
i_24 i_25 i_26 i_27
i_0 i_1 i_2 i_3 i_4
i_5 i_6 i_7 i_8 i_9 i_10
i_11 i_12 i_13 i_14 i_15 i_16 i_17 i_18
i_19 i_20 i_21 i_22 i_23 i_24 i_25 i_26

Fig_17

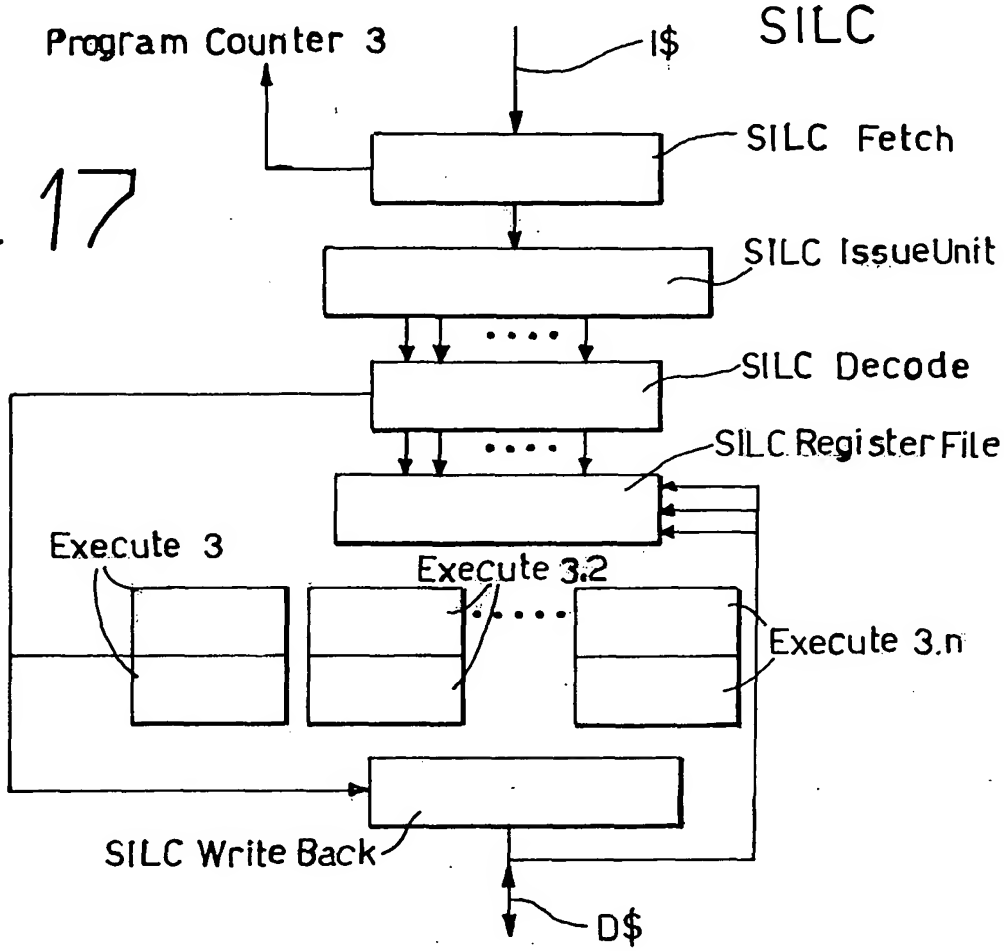

Fig_18

Process	Num.	CPU load	Exec time	Memory	Current execution	Context memory address
SystemIdleProcess	0	52	4:18:39	16K	1	0x1234123A
System	2	02	0:00:37	200K	2	0x3E586321
SMSS.EXE	26	00	0:00:00	0K	2	0xFFC0A867
CSRSS.EXE	34	00	0:00:06	908K	1	0xAFE25432
WINLOGON.EXE	40	00	0:00:01	32K	1	0xCECC4223
SERVICES.EXE	43	00	0:00:01	1044K	1	